



HEALTH, HEALING AND RECOVERY

BY MEANS OF
HIGH-FREQUENCY.

The number is already enormous of those to whom high-frequency treatment has brought help, healing, and recovery, with the fresh interest in life and renewed courage that accompany these. All have become convinced supporters of high-frequency treatment.

WHAT ARE HIGH-FREQUENCY CURRENTS?

To put it briefly: The term HIGH-FREQUENCY CURRENTS is the collective expression for electrical alternating-currents which have become of high frequency. In an alternating-current we have in a conductor somewhat the following procedure: The electric current begins to flow, becomes increasingly stronger, the strength of the current reaches a definite maximum, then becomes weaker again, gradually diminishing to zero; now a current begins to flow in the opposite direction, which again in its turn rises to the maximum, and again weakens and drops to zero, and the procedure begins afresh. Such a process is called a *period*, and if, for example, 50 such take place in a second, we then speak of a current of 50 periods (per second). Or, we can also say that the current has a frequency of 50 alternations per second. The word *frequency* thus denotes the frequent repetition of the process.

Suppose now the frequency is not, as in our example, only 50 per second, but, say, 100,000 or more, then we speak of a very high frequency, or, briefly, High-frequency. High-frequency currents are thus alternating-currents, the direction of which changes with enormous frequency per second.

When an alternating-current such as described is conducted through an electrolyte and a sufficiently-high frequency is chosen, in the first moment of the alternation decomposition will set in; as, however, the current immediately after changes direction, in the second half of the period this effect is arrested. Now, it is striking that alternating-currents, and especially high-frequency currents, do not have the injurious effects upon an organic body which, for example, continuous current has. Especially with high-frequency currents, very high tension can be used without injurious, or indeed fatal, effects, as happens with alternating-currents of lower frequency with high tension. This immunity from danger in the case of high-frequency is indeed one of the principal reasons for the widespread use of high-frequency for healing purposes.

According to the law formulated by the investigator, Nernst, high-frequency currents at a frequency of one million or more per second cause absolutely no further irritation on the tissue of the body. Quite the contrary is the case with *low-frequency* currents, which are designated "Faraday Currents" in electro-medical practice. The latter set up in the body that unpleasant muscle-contracting feeling which we know by the expression "getting a shock". Stimulation of the nerves and muscles through the Faraday current is considerable; consequently, it can only be used in curative treatment for special purposes and cases. On the other hand, the high-frequency current, which reduces the propensity of the tissue to react to stimulation, has acquired for itself increasing confidence among the physical methods of modern curative science.

According to Dr. E. Treibmann, high-frequency treatment shares a further advantage with many physical remedies: It can always be repeatedly applied; neither habituation from frequent use, nor any injuriousness of a local or general character shews itself; it is thus absolutely painless and safe. Similar results to those gained by high-frequency treatment are perhaps obtainable by diathermia, but the former is far easier to apply. For some years the electrical industry has been energetic in putting on the market small, handy and extremely practical high-frequency healing-apparatus. These have been of practical use in the hands of the physician, and to-day they are to be found in hundreds of thousands of homes.

These instruments are simple, without connection to earth and thus safe in their working. They are set in action simply by plugging to the lighting-installation.

HOW DO HIGH-FREQUENCY CURRENTS ACT ON THE SICK AND THE HEALTHY?

The individual effects of high-frequency treatment, which taken together determine the wholesome influence of this treatment upon the human organism, are only partly accessible to our investigation. This is due to some extent to the natural constitution of the body, which forbids exact inspection of the complicated internal processes.

AFTER ALL, THE CHIEF THING IS SURELY THE RESULTS OF THE TREATMENT, rather than its explanation. Indeed, full light has never yet been thrown upon the way in which the working of any medicine whatever is to be regarded.

Leaving, therefore, suppositions and quibblings aside, let us see what results are already definitely accredited to high-frequency treatment.

To begin with, there at once arise through the tiny spark-discharge gases smelling of ozone, the curative value of which is acknowledged.

Then, we may mention the HEATING EFFECT, which everyone can test for himself. As a consequence of this heating, a stronger richness in the blood and an increase in the flow of the lymph are observed near the electrode.

On the other hand, these results are, however, also produced by direct action upon the blood-vessels. During the high-frequency treatment, there is at first a contraction of the blood-vessels, but afterwards an expansion of them. Also by this means a BETTER FLOW OF BLOOD in the part of the body under treatment is obtained. As, however, there is a continuous circulation of the humours of the body, this local stimulation of the stream of humours must also in the end operate throughout the body, and there follows eventually a lasting stimulation of the total circulation of liquid matter within the organism. Now how does this operate?

The increased and quickened circulation of the humours renders possible an improvement in their addition and removal, a STIMULATION OF THE PROCESSES OF ASSIMILATION. The nutriment taken into the blood and lymph channels is now more quickly conducted to the active organs, and in the same way there is brought about a quicker and more thorough removal of the accumulated and freshly-produced assimilative by-products, the waste matter.

These processes, so significant for all curative treatment, are supported by increasing the accession of oxygen and strengthening the elimination of carbonic acid and urine. That is to say, the high-frequency treatment causes DEEPER AND EASIER BREATHING but without increasing the rate of breathing. Through this influence upon the exchange of gas in the lungs, there is perceived an increase in the taking-in of oxygen and an improvement in the elimination of carbonic acid. The effect upon the kidneys is seen by an INCREASE IN THE DISCHARGE OF URINE.

Finally, however, this wholesome stimulation of the total assimilation through repeated treatment can be still further strengthened by obtaining a slight formation of sweat upon the skin, and in general by promoting the activity of the skin by means of increased blood-flow. Further, the quality of the blood is improved, and as a consequence, the humours of the tissues will afford healthier conditions also to the nerves, which are the most sensitive tissues of the body.

But the stimulation of the blood circulation also is effected in a purely mechanical way. Troublesome stagnation and stoppages of blood are hindered by the IMPROVEMENT IN THE CIRCULATION, and eventually the pumping action of the heart is also thereby rendered easier.

easily the circulation of the blood goes on satisfactorily in the more remote parts, the less work has the heart to do in keeping the blood in movement. Beside this indirect RELIEF TO THE HEART, high-frequency treatment also determines directly a strengthening of the contraction of the heart, with a simultaneous retardation of its stroke.

From a consideration of all these effects of high-frequency treatment, there is no limit to its results. It can be appreciated that pains diminish and cease, and it can easily be seen how it promotes healing in cases of catarrh, inflammation and ulcerations. Its tonic effect on the general health, its strengthening of the body generally, especially of the nerves, — all this rests on quite material and entirely natural and obvious principles.

The often amazing results of high-frequency treatment are the perfectly natural consequence of its action upon the general working of the body;

it stands in no need of tentative experiments, such as, unhappily, are carried out in some quarters, in ways that are scientifically hardly tenable, with Nature's forces of energy; it requires the aid of no "suggestion", nor "imagination".

HIGH-FREQUENCY TREATMENT RESTS THEREFORE UPON PURELY NATURAL PRINCIPLES.

*It promotes general health,
Strengthens the body and the nerves,
cures and prevents disease,
is a handmaid to beauty and sport.*

THERE ARE COUNTLESS PROOFS OF THIS.

HIGH-FREQUENCY CURRENTS HAVE NEITHER INJURIOUS NOR DANGEROUS SECONDARY-EFFECTS.

Injurious or dangerous secondary-effects are not found with high-frequency currents. With reference to the secondary-effects of high-frequency currents, Kahane writes as follows:

"The highest importance, attaches to experiments with high-frequency currents which shew that the human organism can, without injury, take directly enormous charges with this electrical form of energy". Kahane adds: "Rightly applied, high-frequency currents are a very valuable curative means. In the sphere of electro-therapy, high-frequency currents may well claim to be in the front rank for their proved effectiveness and the curative results attainable".

The nature of the manner in which high-frequency currents operate is, according to Prof. Mann, based mainly upon the excitation of a stimulation of the skin, which can be graduated both by the regulating of the supply of current as by the increase or lessening of the distance of the electrode from the part of the body under treatment. In addition, by a kind of diathermising in the tissue, there is brought out a self-generated heat as a therapeutically effective force. Finally, as a consequence of high-frequency treatment a fine strong flow of blood through the tissue treated is perceptible.

WHAT IS THE VERDICT OF SCIENCE ON HIGH-FREQUENCY TREATMENT?

WHAT DOES THE DOCTOR SAY?

In the preceding paragraphs general effects of high-frequency treatment have been explained. Let us now, within the limits of the space available, add the testimony of a number of doctors to the results they have obtained with high-frequency treatment. We are here giving extracts from medical books, professional periodicals, etc., regarding experiences and attested results in the sphere of high-frequency treatment. These extracts, in spite of the fact that they can only be printed here in the most abbreviated form, will be able to speak more loudly to the reader and establish his confidence in this treatment more firmly, than any number of words or lengthy articles by persons less expert in this matter could do.

Let us then hear the voice of the physician:

Prof. Ludwig Mann, publishes in the "German Medical Weekly" (Vol. 51, No. 14) a long discussion of the character of high-frequency currents and their therapeutical use in medical practice.

Beside certain skin-diseases and mucous skin-disorders, which he considers as suitable for high-frequency treatment, the author refers particularly to the large field of diseases of the nervous-system, where he regards this method of treatment as most promising. *Surprising successes give proof of this.*

The treatment of nervous disorders by high-frequency currents.

With reference to the treatment of nervous disorders, *Prof. Mann* argues as follows: It may be applied as an alleviating medium for superficial skin-irritation, itching, asthesia, neuralgic pains, hyperasthesia of the skin, etc., and in such cases, the procedure is to put the electrode on firmly or take it off only a very little, so that merely a warming effect, or at most a quite faintly-appreciable stimulation, is felt. With neuralgic and similar pains, which proceed from more-deeply placed nerves, stronger stimulation can be applied, with spark-transmission in the region of the diseased nerve-roots or of the parts of the skin attaching to them. The treatment is very appropriate with all vascular-motor neuroses, in which cases a moderately strong skin-stimulation can be applied. This has, in conjunction with the warmth produced, a repeatedly regulating action on the peripheric circulation, and along with this also gives subjective relief. Migraine may be mentioned in this connection.



Indirect treatment with the metal electrode or the saturator.

The influence of high-frequency currents upon the circulation (according to Prof. Mann).

It is probably also to be ascribed to its *influence upon the circulation*, that after high-frequency treatment consisting of massaging the extremities and the back, etc., with the electrode with slight spark-transmission, many patients feel themselves strongly stimulated. Such treatment can therefore be announced as eminently applicable for every condition of debility, whether of nervous or any other character. Similarly, it is justifiable, in cases of disorders proceeding from the internal organs (such as neurosis of the heart, stomach neurosis, etc.), when these disorders are functionally restricted and accompanied by all kinds of unpleasant sensations, to treat the parts of the skin corresponding to the organs with mild high-frequency currents with the condenser electrode, starting with a draining action and regulating the circulation. This treatment often gives favourable results, especially with heart neurosis.

Arthralgia, rheumatism, and sciatica disappear.

Professor Hirsch, physician, of the Berlin Infirmary, writes in his work: "Therapeutical Handbook of Electro and Radiation Therapy", as follows:

Local (high-frequency) treatment has an alleviating effect in cases of neuralgic pains, rheumatic myalgia (muscular rheumatism), incipient arthritis (articular inflammation). Many sufferers from neuralgic and myalgic disorders feel the alleviating effects as soon as the treatment is applied. (High-frequency) local treatment has proved itself extremely serviceable for such neuralgic disorders as sciatica, neuralgic lumbago (loins), abdominal neuralgia (stomach), trigeminal neuralgia (face) and occipital neuralgia (back of the head). The treatment has a very favourable effect upon myalgic affections of the shoulder and loin muscles, which are so frequent, as also upon arthritis of the joints of the shoulder, hand, and foot. From personal observation, haemorrhoids may be treated with very good results through the duct-contracting effect of high-frequency heating. Before every operation for haemorrhoids, this local treatment with high-frequency currents should be tried, as the treatment is absolutely harmless, very promising, and causes little inconvenience to the patient.

High-frequency currents a remedy for headache and neuralgia.

Professor Kowarschick: The pain-reducing effect gives the high-frequency current indications of cure with the most varied nerve and muscle pains. In the same way, good service is rendered in cases of nervous headache, neuralgic pains, etc. Many complaints of this nature which have been entirely unaffected by other methods of treatment have been helped and healed by local application of the high-frequency current.

Prof. G. Peritz: Of all electrical methods of treatment recommended for headache, high-frequency has in my experience proved itself the best. When I use it, I take one electrode in my hand and with the other hand apply the high-frequency to the skin of the head, temples and neck.

High-frequency currents in Trigeminal-Neuralgia.

(By *Dr. W. E. Sommerville*, of Glasgow, in the "British Medical Journal", Dec., 1921)

The author discusses the distrust which a considerable number of physicians still have against high-frequency treatment, and urges that high-frequency currents are admirably suited for treating the various forms of *neurosis and neuralgia*. In support, he refers to a case of *trigeminal-neuralgia*, which he treated intermittently from November, 1911 to June, 1912. By then the neuralgic pains had disappeared and up to November, 1912, when the author last saw the patient, had not returned. The author has treated with high-frequency many more such cases of more or less painful neuralgia, and in most succeeded in obtaining complete cure.

Relief to internal organs.

Dr. Rumpf writes: General treatment of the body by surface radiation affords relief to the internal organs, imparting a sense of freedom to lungs, bronchial tubes, heart, liver and other parts. In cases of bronchial asthma, results are obtained by this therapy, using local and general application, which other methods only gain with difficulty. Almost every sufferer may look for good results from this therapy.

Successes with electric ozone-inhalation in cases of consumption.

Dr. van Doren writes: "My successes with electric ozone treatment for tuberculosis and allied

maladies might really be described as phenomenal. All the cases which I treated in their early stages ended in positive cure. Even a few desperate cases were able to be saved by ozone application. The effects obtained by use of violet rays are only curative and never injurious."

Sleep better after high-frequency treatment.

Professor T. Cohn: I gladly acknowledge, that in addition to the improvement in sleep effected, which I found took place the very first time I used the treatment, I also obtained very favourable results with certain itching skin-affections; further, pains of a neuralgic nature were in many cases strikingly reduced, and, finally, with pre-sclerosis and other pathological increases in blood-pressure, both objective and subjective improvement may be looked for.

The high-frequency current a compensating medium for strengthening the body.

Dr. Monnel (in "The Truth about High-Frequency") writes: The tonic effect of the high-frequency current upon fagged nerves and muscles has established its reputation as the ideal treatment for states of exhaustion. We have observed the effect of violet-ray treatment on tired-out workers and worn-out people in responsible positions, and we have confirmed that already after a three-minutes' application these people were re-invigorated and felt themselves re-strengthened by the treatment.

Dr. C. Murray writes: "High-frequency currents produce an adjusting and vitalising process in the human body, and the widest popularity is to be expected and desired for this method of treatment."



High-Frequency in curative treatment. Inhaling ozone.

Sure results with self-treatment.

In the weekly periodical, "*Clinical Medicine*", we read the following regarding high-frequency appliances: "The invention so promising for the future, of small portable high-frequency appliances, removes the difficulties occasioned by large machines. It is now possible for the doctor to prescribe this treatment to be used by the patient at his own home. The new small appliances are excellent and 100 % effective. With the help of the introductory booklet accompanying the machine, the sufferer can easily carry out the radiation on himself with sure results."

Dr. F. Strong writes: "In contrast with many electro-therapeutic methods, these rays can be applied by the patient with the utmost safety. I am convinced that this successful method will become general.

If only every member of a family would treat himself for 10 minutes daily with this small handy apparatus, the general state of health would be much improved. This has been proved by hundreds of cases."

ON USING AND STARTING THE HIGH-FREQUENCY APPARATUS.

Using the high-frequency apparatus.

As the high-frequency apparatus is not connected to earth, its use is absolutely without danger. Consequently, there need be no anxiety in handling the apparatus for the first self-treatment. Confidence soon follows, and the correct use of the apparatus becomes a matter of course.

Starting the high-frequency apparatus.

High-frequency appliances can be plugged to any lighting installation and can be used with either direct or alternating current. All that is necessary is to see that the apparatus is adapted to the voltage used.

Before starting:

1. First make sure that the voltage stated on the apparatus agrees with that in use in the house.
2. Then turn the regulating-knob on the apparatus to the left until it buzzes, so that on connecting, the apparatus is completely out of circuit.

Starting the apparatus:



1. The electrode to be used at the time is carefully inserted in the handle with a slight turning movement.
2. The flex is connected to a plug-bracket. Should none be handy, use a screw attachment.
3. Take hold of the handle with the left hand and place the electrode firmly upon the part of the body to be treated, or upon some other object, so that in any case the current may be deflected.
4. With the right hand turn the regulating-knob slowly and gradually to the right until violet rays are visible in the electrode. If stronger current is desired, turn the regulating-knob still farther to the right. Treatment should always begin with the current weak, increasing as you go on. In

almost all cases it is not correct to assume that the stronger the apparatus is adjusted the stronger will be the effectiveness.

5. Each particular treatment must be in accordance with the times of treatment stated in this book. Between the treatments the apparatus must be switched off and allowed to cool down.

After treatment:

1. The regulating-knob is turned back to the left until it buzzes.
2. The flex is pulled out of the plug-bracket.
3. The electrode is taken out and cleaned as directed in the appendix on "Electrodes".

General remarks:

1. The apparatus must never be connected to an electric supply of voltage other than that indicated on the apparatus.
2. The apparatus must always only be connected when the regulating-knob is turned full round to the left.
3. Always avoid any sudden or violent regulation of the apparatus from weak to strong.

4. An electrode must be on the apparatus before the current is allowed to run through it, or with the electrode resting on some part of the body or on some other object, so that the current may always have an outlet.
5. Take care that the apparatus is not accessible to unauthorised persons not acquainted with the handling of it.
6. If the above directions are exactly carried out every good apparatus can be expected to fulfil continuously the demands placed upon it. It will then have an almost unlimited lifetime, and will always give satisfaction.

Pay special attention to:

Switching on: Always slow and gradual.

Switching off: Short and sharp.

GENERAL REMARKS ON HIGH-FREQUENCY TREATMENT.

The use of the high-frequency apparatus is absolutely safe.

As the high-frequency apparatus is not connected to earth, its use is absolutely without danger. Consequently, there need be no anxiety in handling the apparatus for the first self-treatment. Confidence soon follows, and the correct use of the apparatus becomes a matter of course. On starting the apparatus, one should not come in contact with electric or telephone wires, or metal and similar objects. Although no consequences can be caused thereby, prickly sparks may possibly flash across now and then, causing alarm or an unpleasant feeling.

Not to be used in damp rooms; remove metal ornaments.

Treatment with the high-frequency apparatus is most successfully applied in well-ventilated rooms. Under no circumstances should the room be very damp or filled with water-vapour (as in bathrooms); see also that the floor is dry. The skin must be rubbed dry before treatment; wet or perspiring places on the skin are not suitable for the treatment. Metal objects, such as rings, chains, earrings, hairpins, are best taken off before treatment.

Increase the current gradually.

Generally it will be found pleasant to begin every treatment with weak current, and only gradually apply the prescribed strength. In this matter, each individual must be guided by his personal stronger or weaker sensitiveness.

If it is desired to apply a particularly weak current, especially in treating the eyes, ears, and nose, one or more fingers should be placed on the neck of the electrode, to serve as a conductor, so that the current may not work fully.

What must be observed in treating the hair?

Hair-treatment must not be undertaken immediately after washing with alcoholic hair-washes and shampoos, as otherwise the danger might arise of the alcoholic vapours remaining in the hair catching alight.

Note also the remaining instructions.

Many illnesses arise in consequence of an unsuitable mode of life. High-frequency treatment cannot, where that is the case, remove the violation of natural laws. An improvement can therefore never be looked for unless the old habits are given up. Attention must accordingly be paid to the remaining instructions for treatment, and in this way the goal will be reached more quickly and more surely.

INTRODUCTORY REMARKS ON HIGH-FREQUENCY TREATMENT FOR THE SICK AND THE HEALTHY.

"High-Frequency, considered in its multifarious applications, represents as a whole an incomparable healing-process for general strengthening of the nerves and mental processes; it builds up and nourishes the muscles and the blood; it destroys all unhealthy, extraneous and noxious substances, and is a physiological stimulant for the whole human physical system."

Dr. Monnet.

That surprising successes are obtainable with high-frequency is confirmed by doctors who make a serious use of high-frequency in large practices. It is of course impossible within the limits of this pamphlet to discuss high-frequency treatment exhaustively and to present a complete exposition of its manifold successes. We must rather confine ourselves to giving here only brief introductory remarks regarding the treatment of diseases and complaints, the course and curing of which can be favourably affected by high-frequency treatment.

This pamphlet makes no attempt whatever to play a part which it is not intended to play. We have no intention of taking the place of the professional adviser, the doctor. Go and consult your doctor! He will then take the correct measures for the high-frequency treatment and will supervise the carrying-through of the treatment. Therefore be prudent and try no tricks! Just as with medicine, high-frequency cannot in all cases be the only means of help. It would be presumptuous to make such an assertion. Anyone, however, who has tested the effectiveness of the high-frequency treatment, and has become familiar with the apparatus, very quickly discovers the many and varied possibilities of its use. Above all, a strict rule must be made of the punctilious observance of a regular course of treatment, which in any case must be begun at the first signs of illness.

Thus the possession of a high-frequency apparatus will bring relief, healing and recovery, and be a cause of rejoicing. The outlay will not have been made at the instance of some passing advertisement, but the money spent will bear manifold interest in the coinage of

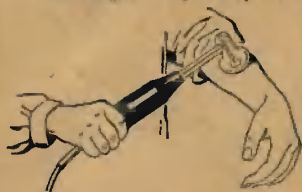
health, fresh vigour, and new courage to face life!

DIRECTIONS FOR APPLYING HIGH-FREQUENCY TREATMENT.

To put it briefly, the nature of high-frequency treatment consists, firstly, in the production of heat by the current, especially when the electrode is placed upon the body; secondly, by means of the sparks which are thrown off when the electrodes are held at a distance from the surface of the body, special psychological curative effects are set up; thirdly, by indirect treatment the high-frequency currents may be directed through a second person to any part of the body desired; fourthly, by means of high-frequency, applying electrodes shaped specially for the purpose, disfigurements on the skin can be removed, and thus destruction of tissue be effected without bleeding; fifthly, the flow of rays by high-frequency currents can be imparted to the whole body by general charging with the metal electrode or the saturator; and, sixthly, when the high-frequency currents pass into the air ozone gas is given off, which can be used for healing purposes by ozone-inhalation through electrodes specially prepared for this purpose. Thus, one after another, six fundamental methods of applying high-frequency treatment have been established.

1. Treatment by contact. (General form of treatment.)

Treatment by contact, the most frequently applied form of radiation, is direct high-frequency treatment, in which the high-frequency current acts from the electrode in close contact with the skin, i. e., by placing the electrode firmly upon the skin and making slow stroking movements with it: (a) in the case of external parts to be treated, directly upon them; or, (b), when internal parts are under treatment, by means of special electrodes. Both in (a) and (b) the high-frequency current is applied directly to the parts under treatment.



(a) **External Treatment.** This is applicable for removing all kinds of pains of a general character, neuralgic affections, rheumatism, sciatica, and similar complaints. Also for beauty and general physical culture, for smoothing and revivifying the skin, for the strengthening of muscles and nerves, for attacking indigestion and constipation, and for various abdominal disorders, etc.

(b) **Internal Treatment.** This is carried out with special electrodes which can be inserted into the apertures of the body: for nose, ears, anus, vagina, urethra (in the case of the latter only by the doctor). Such treatment has often shown amazing results. Thus, for example, certain chronic affections of the nose, neck, and throat, and many others are relieved in this way. In most cases of internal treatment, the particular electrode used is previously oiled and then carefully inserted. Then, and not before, the current is turned on and increased gradually. During the insertion no active movement should be made, as such movements might cause the electrode to break. Insertion into the anus is most conveniently made when the patient is lying on his side with knees drawn up and is breathing deeply through the open mouth. The bowel should have been previously emptied, either naturally or by means of an enema.

2. Discharge of Electric Aigrettes.

(a) In loose contact with the skin (short distance away from the skin). Specially beneficial effects can be obtained by aigrette-discharge, in which the electrodes are not brought into direct contact with the skin, but are held away from the skin, the distance varying according to personal sensitiveness, and the current is emitted in the form of sparks. In this way, we receive, in especial, a very beneficial skin-stimulation, and the increased accession of blood in the skin thus achieved is soon evident by its favourable influence on the underlying organs and on the local blood-circulation.

(b) Through interposed cloth (folded cloth, about $\frac{1}{8}$ in. thick). In order to retain more definitely the advantageous heating effect on the skin, the discharge can be passed through a dry linen (or, preferably, woollen) cloth folded two or three times. One special advantage of this method of treatment is that a still stronger skin-stimulation is brought about, with corresponding good effect upon the more deeply underlying organs.

It is not advisable, however, to carry out the treatment through the clothing, as seams, etc., add to the thickness and thus the length of the sparks is varied. Metal objects, such as buttons, buckles, etc., might also concentrate the sparking upon themselves and then cause severe transmission to the skin.

3. Indirect treatment through a second person.

The procedure with this treatment is as follows: The person under treatment takes the metal electrode or the saturator in his hand, and the current

is then switched on. A second person now carries on the treatment by massaging, or stroking lightly with the hands, the parts needing treatment. The high-frequency force is conducted to and in the body of the patient everywhere where the operator places his hands.

It is important that the patient undergoing this procedure should, as much as possible, be safeguarded from conducting off the current, i. e., insulated. This can best be done, for example, by lying on a sofa or bed. In such massaging carried out by a second person, the high-frequency currents are conducted through the hands of the masseur, and then pass off through his body to earth. At the end of the treatment, the current must first be turned off before the attendant removes his finger-tips from the patient's skin.

Although indirect treatment through a second person has proved itself to be an excellent method of treating various illnesses, it is only to be used for certain definite cases. Some physicians who have often applied this treatment have nevertheless found that some patients feel themselves weakened by it. Nor is it to be used for patients with contagious disease. The latter will find the indirect self-treatment described under no. 5, the so-called "charging" (i. e., an indirect self-treatment without second person), an equally effective method of treatment.

4. Fulguration.

Fulguration is the sudden, sharp discharge of the high-frequency current upon the spot under treatment through the cautery electrode, into the tip of which a small wire is fused. The discharge has tissue-destroying effects, resulting in the removal of disfigurements on the skin, such as pimples, blackheads, warts, freckles, corns, proud flesh, etc.

The cautery electrode has a detachable glass tube over the small wire. During the treatment this tube is so adjusted that the fine point of the wire is withdrawn a small fraction of an inch behind the upper aperture of the sheath. The glass sheath is placed upon the spot under treatment and then the current is turned on. The current is first put on so gently that a very weak but uniform stream of sparks is applied to the spot treated.

The bad spot which it is desired to remove is now treated for a short time until it turns whitish, a sign that the skin-tissue is destroyed. If there are bigger formations, then various spots in them are treated. With fulguration treatment, no bleeding or wounds take place, as in other methods, also the forming of scars is avoided.

5. Indirect self-treatment (Charging).

Indirect treatment is certainly the most successful and effective means of raising the general state of health. It stimulates the cells and the circulation of the humours into more vigorous activity. It causes a general re-energising, strengthening and revival of the cell-tissue, as well as improving the blood and facilitating the circulation of the blood.

The body can also be charged very simply with high-frequency current by holding the metal electrode or the saturator alternately in the one hand and then in the other and turning on the current, increasing it for about 5 minutes. During this treatment sit on a wooden chair with the feet on a wooden stool, so that the high-frequency currents may not immediately run off to earth. In this way the whole body is alternately charged and uncharged, thus imparting a feeling of vigour, strength and comfort. Charging is used in all cases of nervous affections, debility or exhaustion, and also when fagged out, run down, or suffering from insomnia, etc.



6. Ozone-Inhalation.

Ozone-inhalation is carried out with a special electrode, the ozone-inhaler. Inhalation of ozone has produced favourable results and cures in cases of incipient lung-trouble, neck complaints, bronchial catarrh, asthma, and other affections.

There are several kinds of inhalation electrodes. They are divided on the principle of evaporation or, alternatively, spraying. To use the inhaler, pour in the inhalation-oil, insert the electrode into the handle and take hold of the middle of the inhaler with the left hand. With the right hand, pump air through the ozone and oil chamber of the inhaler by means of slow and uniform pressure of the rubber-bellow. The mixture of oil-ozone being pumped out through the mouthpiece of the electrode is now slowly and deeply breathed in. Begin the treatment with increasing current and taking from 5 to 8 breaths, adding to the number gradually. For inhaling it is best to use eucalyptus oil with 10% menthol or pine-leaf oil. Slow, calm inhaling bring about good effects. The mouthpiece, however, should not be held too near to the aperture of the nose or mouth, but above all is not to be inserted in it. Mixing of the ozone with the above-mentioned evaporated or sprayed oils is necessary, because pure ozone has a corrosive effect upon the mucous membranes, while, in combination with the inhalation-oil, the mixture has a relieving and soothing effect.

DISEASES AND THEIR TREATMENT.

1. Diseases of the organs of movement.

Among diseases of the organs of movement, changes in muscles and joints are peculiarly susceptible to high-frequency treatment; diseases of the bony framework of the body are not all suitable for self-treatment with high-frequency.

RICKETS. This disease is chiefly caused by heredity, malnutrition, and the child's unsuitable conditions of life. The treatment of a disease like this must first deal with the removal of its unsuitable circumstances. The first things to be provided are: a good deal of vegetables and fruit, especially in uncooked form; not much meat and eggs; plenty of air and sun baths. The high-frequency treatment consists of radiation movements over the whole body with the surface-electrode twice daily, for ten minutes each time, the movements to be made from the neck and from the hands downwards to the heart, and from the feet upwards to the heart. At first weak current is to be used, and medium strength after a week's treatment.

ACUTE ARTICULAR RHEUMATISM, a very painful, feverish disease, passes from one joint to another, first attacking the limbs. In this disease the doctor must be consulted. Food to be dieted, little liquid to be taken. High-frequency treatment as follows: first, careful radiation of the painful places with the skin-surface electrode, twice daily for 8 to 10 minutes, using medium current. Later, more energetic treatment with the condenser or the nerve-brush. Occasional morning charging of the whole body.

ACUTE ARTHRITIS arises generally through excitation of tuberculosis, gonorrhoea, syphilis, or it can arise from gout (see later), or as a consequence of blood-poisoning. In addition to the treatment of the original disease prescribed by the doctor, radiate the inflamed joint and the part round it twice daily for 10 minutes with the surface electrode, using first weak current and later medium strength. When the symptoms die away, for the second treatment use a massage-roller.

CHRONIC ARTICULAR RHEUMATISM can occur in conjunction with acute articular rheumatism, or also be due to catching cold or getting wet through. Treat the joints attacked vigorously twice daily for 10 mins. with the condenser electrode, using medium current. In addition, treat the immediate neighbourhood of the joints once daily for 5 mins. with the skin electrode. Help the return to full mobility by frequent movements, taking care not to put too great a demand upon the joints.

OTHER CHRONIC FORMS OF ARTHRITIS go with stronger discharges of liquid into the cotyles. In their further course, movements are more severely restricted. The cause often lies in a push, fall, or over-exertion, or is due to infection. The high-frequency treatment is the same as for chronic articular rheumatism.

BRUISES are harmless injuries which lead to local blood haemorrhage, and are painful when pressed. Apply damp compresses. For the first few days treat the discoloured or swollen parts of the skin twice daily for 8 to 10 mins. with the surface electrode, with medium current; later, massage-roller.

SPRAINS. First set the injured part immediately in a comfortable position and bind a wet cloth firmly round the joint. The high-frequency treatment quickens recovery and speedily alleviates the pain. Radiate carefully the painful parts twice daily for 10 mins. with the surface electrode, medium current. Should there be a suspicion that a tendon is torn or even a bone broken, the doctor must be sent for at once.

DISLOCATIONS are to be recognised by the altered shape of the joint. Appropriate setting of the bone must be immediately undertaken. After this, the joint must be made comfortable with a damp bandage for a few days; then begin to treat the injured joint and the part around it slowly and carefully by light massage with the surface electrode 2 or 3 times daily for 10 mins., using medium current.

MYODYNIA. This may be a matter of diseases of the nervous system, or of the blood vessels, or anemia, etc. The painful part is radiated twice daily for 8 minutes with the surface or condenser electrode, and once daily with the massage-roller for about 15 mins.; medium current.

ACUTE MUSCULAR RHEUMATISM arises from similar causes as articular rheumatism and is similarly treated.

LUMBAGO is a form of rheumatism of the loin muscles. Treat as for rheumatism.

TORTICOLIS is rheumatism of the neck muscles. Treatment twice daily for 10 mins. with the neck electrode, using current of medium strength; then for a further few days with the massage-roller.

CHRONIC MUSCULAR RHEUMATISM is much more obstinate. The pain varies in intensity. Hard nodules, very sensitive to pressure, can often be felt in the muscles. Particular attention must be paid to these in the high-frequency treatment. Radiate them 3 times a day for 5 mins. with the massage-roller, and in addition devote 5 mins. each time to radiating the surrounding parts; medium current.

MUSCULAR DIASTROPHE can occur as a result of inordinate demand upon a muscle and of clumsy movement. Put on a damp bandage and nurse the muscle. Healing is accelerated by high-frequency treatment, which must be undertaken 3 times daily with medium current. Pass the surface electrode with light stroking movements over the injured spot for 7 or 8 mins. each time.

MUSCLE OVERSTRAIN, following on physical exertion, is treated before going to bed and on arising for 10 mins. with the massage-roller; medium current

*Beneficial massage
of skin and muscle.*

General treatment of upper
part of the body with the
massage-roller.



UNUSUALLY OBSTINATE RHEUMATISM, SCIATICA, etc., are combated still more energetically than in the methods of treatment described above, by means of the condenser electrode with plug, or the nerve-brush. In other respects, manner and duration of treatment as above.

2. Diseases of the brain and the nerves.

Of the diseases of the brain, only such are here discussed as lead to a limitation of physical activities. Psychical and mental derangements attack the manifestations of the soul and the understanding, and such sufferers need above all psychical treatment; they require suitable attention and supervision.

ANEMIA OF THE BRAIN may be produced by any occurrences leading to a decrease of the total quantity of blood, such as severe loss of blood, etc. The high-frequency treatment consists of radiating the body, in a recumbant position, with the surface electrode for 10 mins. with medium strength, especially the neck and nape, and further the chest and upper part of the back.

FAINTING may occur in consequence of nervous over-excitation, such as excitement, or through unpleasant or repulsive impressions. Lay the fainting person down, open close-fitting garments and allow accession of fresh air. Cool brow and temples, and in certain cases the region of the heart also, with cold compresses. Treatment as for anemia.

CONGESTION OF THE BRAIN is observed in conjunction with inflammatory appearances in the region of the head, such as sneezing or throat catarrh; further, in conjunction with severe mental activity, or excessive physical exertion, and after partaking of coffee or alcohol. Obviously, treatment must presuppose abandonment of the actions causing the trouble. An immediate change is effected by radiation of the spine, abdomen, and thigh with the surface or condenser electrode for 5 to 8 mins., current at first weak, later medium.

EPILEPSY. By epilepsy is meant an ailment in which sudden, sharp muscular convulsions occur, together with complete loss of consciousness on the part of the patient. In addition to medical treatment, nourishment

taken should be unstimulating and sparing in meat, and a good deal of time should be spent in the open air. The high-frequency treatment consists of massage radiation of the body, especially the neighbourhood of the vertebral column and the stomach, with the surface electrode, twice daily at first, later 3 times, for 10 mins. each time, with medium current.

CONVULSIONS. By convulsions we mean the occurrence of *convulsions of epileptic character* in infants and small children. Sometimes, only *spasms of the glottis and hiccuping* show themselves, the other muscles remaining unaffected. As there is danger of suffocation, the doctor should be called in at once. The high-frequency treatment, however, is to be begun without delay. Place the neck electrode on the region of the larynx and apply weak current for 5 mins., then for 10 mins. treat the chest with the surface electrode, using medium current. Besides this form of the ailment, muscular spasms with loss of consciousness also occur. In this case, treat as for epilepsy when the patient is free of an attack. A third form of the illness attacks hands and also feet. This calls for **IMMEDIATE** high-frequency treatment. Radiate hands or back of the foot with the surface electrode for 15 mins., using weak current. After disappearance of the attack, continue this treatment for some months twice daily. In addition to the high-frequency treatment, see that the children spend ample time in the light, air, and sun. The feeding should consist if possible of mother's milk.

HYSTERIA. The treatment of hysterical subjects must be principally psychological. It demands careful and sympathetic appreciation of the sufferer's mental world. But simultaneous high-frequency treatment can favourably affect the sensory disturbances of the skin and the paralysed or cramp condition of the muscular system. For this, we recommend alternate use of the surface electrode and massage-roller, with weak current at first, later with medium strength. According to the seriousness of the symptoms, treat for 2 or 3 times daily, for 10 mins., each time. Treatment should be quite general at least once daily, the remaining time being devoted to local treatment of the disturbed centres.

NEURASTHENIA, NERVE WEAKNESS, NERVOUSNESS. These are among the most widespread complaints in these hustling and tremendously nerve-racking times. Among the causes are such as physical and mental over-exertion, protracted strain on the emotional life, and an unsuitable mode of life. Before treatment is begun, a thorough examination of the nervous system must be made, so as to prevent the occurrence of any organic change. The high-frequency treatment has a helpful effect. Treat the whole body twice daily; the first time apply the surface electrode, the second time the massage-roller. Radiate for 10 mins. from hands, neck, and back of the head over the whole skin, front and back, down to about the navel; along with this, radiate for 5 mins. from the feet upwards to the navel, so that each period of treatment lasts in all 15 mins. During the first few days use weak current, and only after that medium strength. In the colder period of the year, treat again a third time, applying the massage-roller. From time to time, apply indirect treatment also with the metal electrode, grasping the latter alternately with the right and the left hand.

INSOMNIA. The cultivation of sleep is an important measure for the maintenance or improvement of health. For insomnia do not use soporifics. Before retiring, a light meal, a little walk, a lukewarm bath or complete wash, but, above all, high-frequency treatment with the surface electrode, using medium current, from the hands to the shoulders for 3 mins., and for a similar period from the feet to the stomach. After this, 5 further mins. with the massage-roller. Or, charge with the metal electrode for

*High-Frequency
in child-nursing.*

*Treatment of the spine with
the spinal electrode.*



3 to 4 mins., holding it alternately in the right and left hand. Calm, deep sleep will soon be again experienced. Avoid stimulants, such as coffee, smoking etc.

HEADACHE AND DIZZINESS. Before beginning treatment ascertain the causes, as otherwise, permanent release from this tiresome and hampering complaint can hardly be expected. **DIZZINESS** is often the forerunner of serious disorders, and when it persists obstinately should lead to early consultation with the doctor. Treat the brow and temples with the surface electrode, the head with the comb electrode, the nape of the neck with the neck electrode or massage-roller. Should the pains proceed from the stomach, then radiate the stomach with the surface electrode for 5 or 6 mins., with weak, and later medium, current. In the evening, treat a second time, and massage with the broad skin electrode the whole body, both upper and lower parts, working always toward the heart; treat for 10 mins., using medium current. The drainage treatment is also advantageous in these cases.

NERVOUS HEADACHE (MIGRAINE). In contrast to ordinary headache, this takes the form of an attack, and is often accompanied by vomiting. The high-frequency treatment must be carried out regularly every day, and further is of great service during the attack, when the neck should be treated for 5 mins. with the neck electrode and the chest for the same period with the surface electrode, using weak current. Daily treatment is to be undertaken morning and evening, applying medium strength current; treat, each for 5 mins. each time, upper and lower parts of the body with the surface electrode, making strong strokes towards the heart.

NEURALGIA consists in very violent painful attacks confined to the parts around one or a few nerves. Radiate, in addition to the seat of the pain, brow and temples with the surface electrode, the neck region and nape with the neck electrode, head and occipitus with the comb electrode; current weak to medium, duration, 5 to 8 mins.

FACE-ACHE arises often with gout-seed, or in consequence of lead poisoning, etc. Treatment twice daily with the surface electrode; for the first 3 days with weak, and then with medium, current; 5 mins. each time. Continue the treatment after the disappearance of the pain for a further 14 days, and, as a precaution, repeat frequently.

PAINS IN THE CHEST. Chest pains may be not only a consequence of diseases of the pleura, lungs, and heart, but may also arise as an independent form of neuralgia. Should the trouble prove obstinate, confirmation must be sought from a doctor. Radiation of the painful part with the surface or condenser electrode 3 times daily for 7 mins., with medium current.

LUMBAGO, SCIATICA. Neuralgia of the hip-nerves is a very troublesome complaint. Pain often increases during attacks to an almost unbearable intensity, and spreads usually downwards from the seat. Radiate twice daily for 10 mins. with the condenser along the painful nerve from below upward, using, first medium, and then strong current; after a few days, current as strong as possible.

PARALYSIS. In this affliction, high-frequency treatment is applied purely locally and has proved very effective. Except face-paralysis, all forms of paralysis are treated similarly. Apply medium current, and after becoming accustomed to it, allow considerable sparking. Apply twice daily the surface or condenser electrode, and on a third occasion each day the massage-roller. Treatment must be only applied in the region of the paralysis and its immediate neighbourhood and should last 15 mins.

PARALYSIS OF FACE-MUSCLES. Symptoms of paralysis on a portion of the face muscles are not infrequent. Most frequently they are caused by catching cold, or by a draught. Treatment for 10 mins. with the neck or surface electrode; medium current.

SPASMS. These are involuntary movements of the muscles. There are two kinds of spasms: those in which there are twitchings, and those in which the muscle remains stiff for some time in a state of tension.

CRAMP OF THE FACE-MUSCLES occurs generally as an attack in the form of sudden, sharp twitchings. When free of attack, the freedom of movement of the muscles is completely normal. Radiate the side affected with the surface electrode 3 times daily for 10 mins. with medium current.

LOCK-JAW is usually the result of cramp of the masticatory muscles. During the attack, radiate with the surface, neck, or condenser electrode the part of the cheek near the ear, using strong current.

HICCUGH. This is the consequence of a diaphragmatic spasm. During the attack radiate with the surface electrode, or massage with the massage-roller, the lower part of the chest for 10 to 15 mins. with medium current. This treatment is also to be undertaken for spasmodic yawning, laughing, weeping, and screaming.

REMAINING SPASMODIC AFFECTIONS are similarly treated by radiation with the surface or condenser electrode, or massage with the massage-roller, in close contact with the skin, applying medium current for 10 to 15 mins., irrespective of the duration of the spasm.

3. Diseases of the digestive organs.

The correct working of the digestive processes is essential for the maintenance of health. Ill-health in one of the digestive organs is never long restricted to itself. Whenever any derangement exists in the digestion, utilisation, or movement of the food consumed, it soon affects the whole body.

Face-ache.
Treatment of the painful parts
of the face with the surface
electrode (10).



Disorders inside the oral cavity.

MYCODERMITIS. To *cleanse* the mucous membrane and remove the coating rinse the mouth hourly with lukewarm water. After rinsing, treatment with the tongue electrode twice daily for 3 mins., with medium current. Then place the insulated neck electrode externally upon the neck epiphysis, and treat for 5 mins. each time with weak current.

THRUSH, confined almost entirely to infants, consists of grass-shaped vesicles of fungi on the lining membrane of the mouth. Once a day for 3 mins. external pressure with the insulated neck electrode on the floor of the mouth, with very weak current.

GLOSSITIS. The tongue swells up, is painful, the general health is upset, and usually there is feverishness. Treat with the tongue electrode twice daily for 2 mins. with very weak current. In addition, once a day place for 5 or 6 mins. the insulated neck electrode externally against the floor of the mouth, using medium current.

MUMPS. This inflammation of the parotid gland, popularly described under the most varied names, is particularly rife in damp, cool weather, especially in Spring and Autumn. Treat for 5 mins. twice a day with the ear electrode, using weak current, and on a third occasion, treat the neck for 10 to 15 mins. with the neck electrode, current weak to medium.

TEETH TROUBLE. The treatment of teeth troubles is, of course, a matter for the specialist, and the treatment necessary should never be put off. In the case of pain arising suddenly, we possess an excellent means of alleviation in high-frequency treatment. Radiate the painful spot externally with the surface electrode for about 5 mins. with weak current. For inflammation of the gums or the alveolar membrane use the insulated tooth-gum electrode. Before treatment, clean teeth with toothpaste or chalk precipitate and rinse out the mouth thoroughly.

Disorders of the neck and throat.

In the back of the oral cavity and in the pharynx there lie organs consisting principally of ganglion-like tissue. As the "lymphatic circle" they cover the whole inner surface of the throat.

THROAT CATARRH. The acute form is distinguished from the chronic by the greater redness, swelling, and secretion of the mucous lining. Before

treatment with high-frequency, gargle with lukewarm water to which a pinch of salt per glass has been added. Treat 2 or 3 times daily according to the severity of the symptoms. Apply once or twice the throat electrode for a minute or two with weak current; the other times, radiate the neck and floor of mouth with the neck electrode for 5 mins. with medium current.

TONSILITIS. The simplest form of tonsillitis is the catarrhal, which is similar in character to throat catarrh and is to be treated like the latter. More serious is the course of purulent tonsillitis, and the doctor should be called in. High-frequency treatment serves to relieve the pain during the violent process of the inflammation and to expedite the complete cure. Radiate, from the outside, floor of mouth and neck with the neck electrode twice daily for 7 mins., using medium current, and further once a day for 2 mins. with the tongue and throat electrode, with very weak current.

GOITRE. Treat the sick part with the surface electrode; also indirect massage of the neck. Occasional treatment also with the large cataphoric electrode, which is first filled with cotton-wool and the latter soaked with a 10 % iodine-potassium solution.

Stomach-Disorders.

In cases of disorders of the functions of the stomach, it is essential to pay special attention to diet. It is impossible to give here advice of general applicability. A sick stomach must be given the utmost possible care. Take very little liquid; avoid cold and alcoholic beverages, tobacco, stimulants such as coffee, pepper, etc. Unstimulating mixed fare, vegetables and fruit, are good.

ACUTE STOMACH CATARRH. The chief symptoms of acute stomach catarrh are nausea and loss of appetite, often accompanied by vomiting. The high-frequency treatment must be undertaken in conjunction with dieting. Radiate twice daily for 5 mins. the region of the stomach with the surface or condenser electrode, turning on first weak current and gradually increasing to medium strength, and afterwards treat for 3 mins. each the back and abdomen.

CHRONIC STOMACH CATARRH. Chronic stomach catarrh develops from the acute form if the latter is neglected, or it arises very gradually as a consequence of frequent use of alcohol, tobacco, etc. Treatment consists of strict observance of the above-mentioned general advice on diet. High-frequency treatment as for acute stomach catarrh.

STOMACH DEBILITY, a condition in which the stomach is permanently dilated on account of the diminution of the astrictive power of its muscular strata. With the massage-roller massage the whole of the abdomen 3 times daily for 10 mins., with medium current.

NERVOUS DEPRESSION OF THE STOMACH. This is generally a form of difficult or retarded digestion. Usually, in addition to the indigestion, there are evidences of participation of the nervous system in the matter, so that nervous disorder may be suspected. Nevertheless, the treatment should be in accordance with the general advice for stomach trouble, and furthermore that given for nerve weakness. Radiate the stomach region with the surface electrode twice daily, each time for 5 mins., adding 5 minutes' treatment of the abdomen and back. Continue this for some time.

STOMACH CRAMP takes the form of attacks of stinging, cutting pains in the region of the stomach. The cause can generally be traced to nerve

trouble, anemia, or female disorders. On an attack, immediately radiate the stomach region with the surface electrode for 10 mins., at first with weak current, and after 5 mins. with medium current.

GASTRIC ULCER. In longstanding or difficult cases, the calling in of medical advice should not be put off. In any case, high-frequency treatment is to be recommended in addition to the special stomach treatment ordered. Radiate back and stomach region 3 times daily for 8 mins. with the surface electrode, using only weak current.

Intestinal diseases.

Disorders of the intestinal canal are not confined in their effects to the organ affected, but rather, the altered course of the digestive processes caused by intestinal trouble soon becomes evident throughout the whole of the body.

ACUTE INTESTINAL CATARRH. The cause lies mainly in unwholesome constituency of the food consumed. For treatment, we recommend the use of an enema and a period of fasting. Begin immediate high-frequency treatment. If attacks of pain are particularly severe, treat for at least 3 times a day for 3 to 10 mins. the whole surface of the abdomen with the surface electrode, or, if desirable, the massage-roller; current to be medium strength.

CHRONIC INTESTINAL CATARRH. Chronic intestinal catarrh may remain after acute catarrh has died away, or it may develop as a result of frequent irritation of the intestinal mucous lining. Regulate mode of life, and diet; in the morning, before a meal, and in the evening after a meal, take a cup of hot peppermint-tea. The high-frequency treatment is to be applied to the abdomen twice a day for 10 mins. with the surface or condenser electrode, with medium current.

COLIC (abdominal pains occurring in attacks; generally they are particularly sharp in the neighbourhood of the navel). The causes are, on the whole, the same as in acute intestinal catarrh. Treatment by injection of tepid camomile (about 85° Fahr.) by means of the enema, followed immediately by high-frequency treatment. At each attack treat the painful part for about 5 mins. with the massage-roller, with medium current.

SUMMER CHOLERA (in children). As a child's body has less capacity for resistance, the causes, which in adults lead to harmless intestinal catarrh, may occasion the severe and serious illness which is termed summer cholera on account of its chief symptoms. Treatment is so difficult and responsible that a doctor should at once be called into consultation. In addition, high-frequency treatment may be applied for its soothing effect. Treat the abdomen twice daily for 4 or 5 mins. with the surface electrode, using very weak current.

CONSTIPATION. To treat this, it is indispensable to stimulate the functioning of the bowels by a diet abundant in vegetables and fruit. There should be ample physical activity. Treat the abdomen twice daily for 10 mins. with the condenser or massage-roller, which must be firmly pressed on; at the beginning apply weak current, making it stronger soon after. Furthermore, once a day insert a well-oiled rectum-electrode into the bowel after it has been emptied either naturally or by means of an enema, and allow weak current at first and then medium to work for 5 mins. The insertion is most conveniently carried out when the patient is lying on his side with knees drawn up and is breathing deeply through the open mouth.

HAEMORRHOIDS. Haemorrhoids are knot-shaped dilatations of the blood-vessels of the bowel and anus. Treatment as for constipation.

Diseases of the liver and gall-ducts.

Diseases of the liver and gall-bladder are difficult for the layman to diagnose, and require therefore medical advice. Still, as a supplementary measure, high-frequency treatment has invariably answered well. Radiate the region of the liver twice daily for 5 mins. with the surface or condenser electrode, applying medium current.

JAUNDICE. Jaundice may easily be recognised by the discoloration of the white of the eye and the skin. The cause must be looked for in inflammation of the gall-bladder or the intestinal membrane, or may be due to obstruction of the gall-ducts from gall-stones. Treat the abdomen with the massage-roller for 8 mins. 3 times daily, with medium current.

GALL-STONE COLIC. When gall-stones meet an obstacle on their way through the gall-ducts, violent attacks of pain generally occur. High-frequency treatment affords relief. Radiate the painful part for 5 to 10 mins. with the surface or condenser electrode, using at first weak current, and medium strength after a few minutes.

4. Assimilative disorders.

To these appertain diseases due to irregularities in the assimilative processes. Their treatment must consequently first of all consist in eliminating disorders in the body.

OBESITY may be due to disorders not easily diagnosed. It often arises on account of rich feeding, and specially through taking excessive liquid nourishment along with insufficient physical activity. High-frequency treatment cannot be successful if such a mode of living continues, but in conjunction with a thorough change of manner of life is of great value. Treat twice a day for 10 mins. with the massage-roller, applying medium to strong current; the first time, both upper and lower parts of the body are to be radiated, the second time abdomen only. Every third day spark-radiation of the whole body, especially stomach and back, with the surface electrode. If there is heart weakness, further radiate the region of the heart once a day with the heart-spiral. Occasional charging with the metal electrode.

GOUT. Treatment of gout must likewise be very thorough and cannot be carried out without advice. In very painful attacks, however, high-frequency treatment affords wonderful help. The high-frequency treatment is applied to the joint and the parts around. Radiate the skin strongly with the surface or condenser electrode for about 10 mins. during the attack, otherwise up to 3 times daily for 10 mins. Once or twice a week radiate the whole body, using medium current.

DIABETES. This disorder of the saccharine assimilation, sometimes of minor, at other times of greater, significance, requires immediate professional treatment. Often there is troublesome pruritus, which is very agreeably alleviated by high-frequency treatment. Treat the itching parts every time for about 5 mins. with the surface electrode, using medium current.

5. Disorders of the breathing organs.

Ailments of the air-passages frequently receive too little attention and then lead to head-pressure and headache and other troublesome symptoms injurious to health.

NASAL CATARRH is catarrhal inflammation of the mucous membrane of the nose. About 3 times a day radiate with the surface electrode over

6. Diseases of the heart and blood-vessels.

As the heart provides for the circulation of the blood within the body, heart trouble is not confined to itself, but also soon leads to disorders of a general character.

DISORDER OF THE CARDIAC MUSCLES: Impaired blood-circulation due to failure of the heart's functioning. Radiate twice daily for 7 or 8 mins. with the heart electrode, using weak current, and once with the massage-roller.

OVERSTRAIN AND WEAKNESS OF THE HEART. Treat the heart region for 5 mins. with the heart electrode, using weak current; after this, radiate from the feet or the pelvis up to the heart once or twice a day for 5 mins. with the surface or condenser electrode, with medium current.

NERVOUS HEART-DISORDER (HEART NEUROSIS). The treatment is fundamentally that of the nervous condition; but the advice applicable to heart diseases in general must also be borne in mind. High-frequency treatment as for heart weakness, and in addition occasional charging for 2 or 3 mins. with weak current.

HARDENING OF THE ARTERIES is a sign of age, which, though it cannot be arrested, may be postponed. Manner of life should be extremely temperate, bowel functions regular; constant use of alcohol, tobacco, coffee, etc. to be given up. Radiate once a day for 5 mins. with the surface or condenser electrode the whole body, front and back, always towards the heart; further, occasional charging for 2 or 3 mins.

VARICOSE VEINS: these are veins in the legs which are distended, stand out bluish, generally tortuous, caused by obstructed blood circulation. Radiate twice daily for 5 mins. with the surface electrode; later on, with the condenser electrode and massage-roller; medium current.

BAD LEGS. Treatment as for varicose veins and herpetic eruptions.

7. Anemia and Chlorosis.

In anemia and chlorosis the chief factor is the considerable diminution in the quantity of the red colouring matter in the blood. The main causes are unsuitable food and lack of air and sunshine. Obviously, treatment must first of all give attention to both these points. High-frequency treatment to be applied generally. Radiate the body 3 times daily with the surface electrode: the upper part of the body the first time, the second time the lower part; the third time treat the whole body with the massage-roller. In addition, ozone-inhalation every second day for $\frac{1}{4}$ to $\frac{1}{2}$ min., and occasional charging for 2 to 3 mins.

8. Affections of the urinary organs.

These diseases usually develop slowly and have a lingering course; at the outset, they cause only slight general discomfort, such that the sufferer is unaware of urinary disorder.

INFLAMMATION OF THE KIDNEYS. This is to be regarded as serious, and a doctor should be consulted. The process of recovery can be materially accelerated by high-frequency. Treat 3 times daily the lower parts of the back with the surface electrode (later on with the condenser), each time for about 10 mins., current at first medium, later strong. Or indirect treatment (massage) of the kidney area, in conjunction with radiation with the condenser.

KIDNEY STONES, the presence of which is first suspected when there is a sudden attack of kidney colic. Consult a doctor. Immediate high-frequency application for relief of the pain. Radiate especially the painful



Heart treatment with the spiral heart electrode (30)

for heart trouble, or after severe exertion in sport, etc.

kidney area with the surface electrode, and then also the whole of the side of the abdomen as far as the groin for at least 15 mins., using medium current.

RETENTION OF URINE: inability to pass urine. Immediate aid is indispensable; hence the doctor must be consulted. High-frequency treatment is best undertaken with the condenser electrode. Place it in the region of the bladder and treat with weak current for about 15 mins.

BLADDER-WEAKNESS; BED-WETTING. In order to strengthen the membrane of the bladder, the latter must temporarily be spared, and the flow of liquid to it must be limited to the utmost. Treat twice daily for 10 mins. with the massage-roller, using weak current in the first few days, and then medium strength. After emptying the bladder, move the electrode to and fro in the bladder area, massaging vigorously.

9. Skin and Hair affections.

In the case of long-standing skin disorders, a diet scanty in meat must be adopted and regular high-frequency skin-massage.

SKIN IMPURITIES (Blackheads, pimples, etc.). See under Beauty-culture.

SKIN DISFIGUREMENTS (Freckles, moles, corns, etc.). See under Beauty-culture.

BOILS. By boils we mean acute inflammation of the glands of the skin and hair-follicles. Should numerous boils constantly arise, then we speak of a **FURUNCLE**; should several boils close together overflow into each other, then we have a **CARBUNCLE**. In such cases, medical advice should at once be sought. High-frequency treatment is undertaken in the immediate neighbourhood of the boil 2 or 3 times daily with the surface electrode. Work round the boil for about 5 mins., applying mild to medium current. A third time per day allow sparking upon the middle of the growth for about half a minute. Continue this treatment until the boil has come to a head. Generally it will not develop so far, but if it does,

then open it with the cautery electrode, placing its wire-point about $\frac{1}{16}$ in. away from the yellowish head of the gathering; then let the sparks act upon this for a very short period. This causes the boil to open and the pus begins to flow out. The operation must be entirely sterile.

ECZEMA, HERPES, PRURITUS. In radiating skin-diseases, it is necessary to wrap the surface electrode in a piece of clean linen, so as to obtain slight fulguration and to impart ample ozone to the skin. A fresh linen-cloth must be used for every radiation. Apply weak current.

SWELLINGS. Heal the blood by means of ozone-inhalation, in conjunction with radiation of the region around the affected parts with the surface or condenser electrode, 2 or 3 times daily for 5 to 8 mins. with medium current.

ULCERS. Treat as for Boils.

ERYTHEMA. See under Beauty-culture.

COLD FEET are indications and manifestations of illnesses of various kinds. To achieve a more vigorous blood circulation, radiate legs and feet energetically with the surface or condenser electrode.

WOUNDS AND INFLAMMATION ARISING FROM THEM can be favourably affected by high-frequency. Apply the wound electrode with deepened ray-surface.

CHILBLAINS. Radiate the swollen parts 3 times a day for 3 to 5 mins. with the surface electrode, later on with the condenser, using medium current. After-treatment with the massage-roller.

ALOPECIA, DANDRUFF. See under Beauty-culture.

10. Eye and Ear affections.

It will be obvious that the diagnosis and treatment of such important organs of sense as eyes and ears cannot be undertaken by the layman. Still, there are often discomforts present which may be alleviated and cured by high-frequency treatment.

INFLAMMATION OF THE EYELID. Carefully bathe the eye several times a day with lukewarm camomile-tea. High-frequency treatment: Once or twice daily for 2 or 3 mins. with the eyelid electrode, using mild current.

STY. Place overnight on the sty a handkerchief damped in camomile-tea. Apply high-frequency treatment with the eyelid electrode twice daily for 2 or 3 mins., using weak current, or treat with the cautery electrode.

CATARRH OF THE CONJUNCTIVA. The eye is very red, waters copiously, often emits matter. High-frequency treatment: twice daily for 4 mins. with eye electrode, using weak current.

EAR TROUBLES. To be treated by a specialist. High-frequency treatment as supplementary to the necessary measures prescribed. Carefully introduce the ear electrode into the auditory canal and apply weak current twice daily for 3 mins.

BOILS IN AUDITORY CANAL are very painful. High-frequency treatment 3 or 4 times a day. Treat with the ear electrode for 3 mins. each time, using weak current.

SEXUAL DEBILITY, IMPOTENCE. Radiate the sexual organs for about 5 mins. with the surface or penis electrode, beginning with mild current and gradually increasing. In the case of a female patient, radiate the abdomen with the surface electrode and for internal treatment use the vaginal electrode, the treatment to be applied by the doctor.

HIGH-FREQUENCY AS AN AID TO BEAUTY-CULTURE



With the aid of high-frequency application, beauty-culture can make extraordinary progress, as well-tried results have already shewn. Treatment consists principally in general attention to the skin, especially that of the face, eyes, and hair.

Care of the skin.

The value of skin culture for the maintenance of the health of the body was already known to the ancients, for they devoted attention to thorough care of the skin, especially by exposing the body to the natural requirements for health, viz., air, light and sunshine. Stimulation of skin functions means for the body relief for the lungs, relief for the kidneys, better regulation of blood circulation, stimulus to increased formation of blood, strengthening of the processes of assimilation, and finally increased elimination of digestive by-products.

Make a habit of regularly treating the whole of the surface of the skin for about 8 to 10 mins. once a day with the surface electrode. For this, supply the electrode with medium-strength current and with it stroke downwards towards the heart. For very loose muscles, use the massage-roller, which must be firmly pressed on. In bad weather and in the cool season this treatment should be undertaken twice a day.

UNHEALTHY SKIN. Food to be dieted; air and sun baths; in winter, vapour baths. Radiate the whole of the unhealthy skin region and its immediate neighbourhood twice daily for 8 to 10 mins. with the surface electrode, using weak current, but for skin marked with scars, current should be medium to strong. In addition, purely local treatment with the cautery electrode.

LINES AND WRINKLES on the face are not always signs of age. Radiate the face from the chin upwards, to right and left, twice daily for 2 or 3 mins. with the surface electrode. Separate treatment occasionally of individual wrinkles with the massage-roller. High-frequency massage tightens and smooths the skin.

the bridge and root of the nose and the brow, each time for 5 mins. with medium current. Then introduce the nose electrode, well oiled, into the nose, and allow weak current to act directly upon the mucous lining twice daily for 3 mins.

HAY-FEVER occurs only at the time of grass pollination. High-frequency treatment as for ordinary nasal catarrh. In order to increase future capacity for resisting this unpleasant ailment, undertake 3 times a day regular treatment, as above, of the nasal membrane with the insulated nose electrode.

NOSE BLEEDING. If nose bleeding is of frequent occurrence, undertake regular high-frequency treatment. Radiate twice daily for 5 mins. the nape of the neck and bridge of the nose with the surface electrode, using medium current. During the bleeding bend the head backwards and radiate nape of neck and the shoulder.

ACUTE CATARRH OF THE LARYNGEAL ARTERY manifests itself by the voice becoming suddenly husky or hoarse, often quite aphonus. Treat the neck, chest, and back with the neck and condenser electrode for 5 to 8 mins. twice daily with medium current. For this ailment, still further good service is rendered by the ozone-inhaler: 8 inhalations twice a day.

CHRONIC CATARRH OF THE LARYNGEAL ARTERY. The chronic form shews itself by a feeling of dryness and by a tickling in the neck. Treatment as for acute catarrh.

ACUTE BRONCHIAL CATARRH is almost always accompanied by a rise in temperature. Prolonged irritating cough and expectoration occur increasingly. Radiate chest and back with the surface or condenser electrode twice daily for 10 mins. with medium current; in addition, 10 inhalations twice daily of ozone-inhalation. The inhalation treatment has a particularly beneficial effect upon the course of this ailment. Stronger treatment: radiate the neck with the neck electrode and place the tongue electrode on the tongue and breathe in with the mouth. Here, too, inhalation is recommended.

CHRONIC BRONCHIAL CATARRH may be recognised by longstanding cough irritation, beginning generally in the early morning, but also occurring when there is a rapid change in the temperature of the air. Treatment as for acute catarrh.

INFLUENZA. This ailment, which occurs in the most varied forms, may be advantageously combated by high-frequency. Treat forehead, temples, and cerebellum by gentle radiation with the surface electrode. Indirect radiation is also very useful. As a secondary treatment, radiate trunk and legs.

ASTHMA. Attacks of difficult breathing. They arise through spasmodic contractions of the bronchial muscles, and occur mostly at night. During the attack place the condenser electrode on the chest and allow weak current to act for 5 mins. After this, treat for 5 further mins. neck and back with the surface electrode, using medium current. For this complaint ozone-inhalation is also very effective; begin with 3 inhalations, increasing daily up to 15 (not more). Do not give up the treatment when free of attacks; radiate chest, back, and abdomen for 5 mins. each with the surface or condenser electrode.

SWOLLEN GLANDS. Direct radiation of the glands with the surface electrode for a few minutes, with medium current.



Her lovely hair! — His joy!.

Every morning, before going to the office, first the hair treatment with the comb electrode that is so enjoyable.

FRECKLES. MOLES. These are irregular agglomerations of the skin pigments. **FRECKLES** are the size of lentils, dark, and do not stand out on the skin. **MOLES** project more or less beyond the upper surface of the skin and have a light or dark brown appearance. Treat with the cautery electrode for a few seconds, using medium current, until gradually the places turn white.

SCARS AND PROUD FLESH. Treat as above.

WARTS. Treatment as above, but only until the wart turns white on the top. Longer radiation serves no purpose and may only cause pain. It is better to repeat the radiation a time or two. The wart then comes out by itself.

CORNS. Treat as above. Using mild current, spark the corn only until it becomes white on top. Treat very cautiously.

CARE OF THE EYES. For eye-treatment, bathe the eyes with lukewarm camomile at night. Then treat the eyes for 6 to 8 mins. with the eye electrode, applying weak current.

HAIR-TREATMENT is to be undertaken daily with the comb electrode. Treatment with weak current should last from 5 to 8 mins., according to the condition of the scalp and hair. Furthermore, give air and light free access to the hair, wash the latter weekly with good tarsoap, afterwards massaging the scalp for a few minutes with damp finger-tips.

ALOPECIA, DANDRUFF. Where there is considerable formation of dandruff, which is usually followed by falling hair, it is desirable to obtain the utmost possible circulation of blood to the roots. High-frequency treatment is admirably suited for this purpose. Radiate the scalp 3 times a day for 5 mins., with the comb electrode, applying medium current.

A WELL-DEVELOPED FIRM BUST undoubtedly forms part of the ideal conception of feminine beauty. A course of high-frequency treatment carried out with this aim in view, can be of service in cases where Dame Nature has been somewhat niggardly. Start with circular radiation around the breasts with the skin-surface electrode, using weak current. At the outset, radiate each breast for about 5 mins., increasing later to 8 mins. Keep the electrode in constant close contact with the skin, but do not touch the nipples. After this preliminary treatment, place the hollow-shaped breast-developer electrode over the breast and let the current quietly act on the latter for about 1 min.

AFTER SHAVING. In conclusion, let us refer to the application of high-frequency after shaving. In order to give a soothing effect to the smarting and tightness of the skin often experienced after shaving, dry the skin completely and apply the skin-surface electrode lightly to it. The smarting of the skin will soon subside. The production of ozone occasioned by the treatment will also have a disinfecting effect upon the skin. Further, in cuts, the bleeding can be immediately stopped by sparking with the electrode: this causes the blood to clot at once.

ELECTRODES AND THE CARE OF THEM.

Electrodes are vacuum-tubes which consist of a variously-sided, hollow glass body, shaped to correspond with the particular purpose for which it is used. The hollow space in the glass has been sufficiently pumped free of air for the vacuum to provide the best conductivity for the electric current. When the apparatus is adjusted the current is conducted through weak gas which is enclosed in the hollow glass, and by this means the otherwise very hard effect of the high-frequency current is toned down to correspond with the adjustment of the current. The passage of the electric current through the weak gas is indicated by a strong show of light, which may vary according to the height of the vacuum and the kind of gas enclosed in the electrode.

Cleansing of the electrodes.

The cleansing of the electrodes after use must be carefully and regularly undertaken. Generally it will suffice to rinse the electrodes each time with lukewarm water and leave to dry in the air. In addition, it is advisable to cleanse with methylated spirit every second day. In the case of skin affections, wounds, and infectious diseases, regular cleansing with methylated spirit is essential. Lysol may, of course, also be used.

Neon-electrodes.

As already mentioned, there are electrodes filled with neon-gas, which lights up bright red when the current passes through. These electrodes, used with weak current, have a strikingly mild radiation, so that in cases of itching, etc., they may be applied with particular advantage. With stronger adjustment, however, they produce a very intensive current. As is well known, the electric current finds in these neon-electrodes much greater conductivity than in the vacuum electrodes.

LIST OF THE USUAL ELECTRODES FOR THE HIGH-FREQUENCY-APPARATUS.



No. 0 Surface Electrode



No. 2 Condenser Electrode, for special treatment of rheumatism, etc.



No. 2a Condenser with pins, for methods of vigorous treatment



No. 3 Neck and Nape Electrode, for external treatment



No. 4 Comb Electrode, for care of hair and treatment of scalp



No. 5 Comb Electrode, rake-shaped



No. 6 Spinal-Electrode



No. 7 Eyelid Electrode



No. 8 Eye Electrode, single



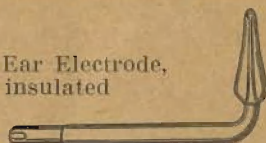
No. 9 Eye Electrode, double



No. 10 Cautery Electrode, for removing warts, etc.



No. 11 Nose Electrode, insulated



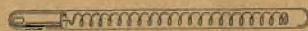
No. 12 Ear Electrode, insulated



No. 13 Throat Electrode, insulated



No. 14 Metal Rod for indirect treatment



Glass Saturator for indirect treatment



No. 15 Tongue Electrode, insulated



No. 16 Urethral Electrode



No. 17 Urethral Electrode, insulated



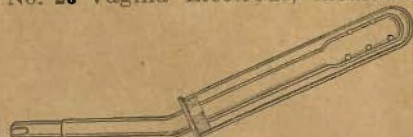
No. 18 Penis Electrode



No. 19 Vagina Electrode



No. 20 Vagina Electrode, insulated



No. 21 Vagina Electrode, insulated, perforated for production of ozone



No. 21a Vagina Electrode, insulated, with perforation and with mouthpiece for bellows



No. 22 Rectal Electrode



No. 23 Rectal Electrode, conical shape



No. 24 Rectal Electrode, insulated



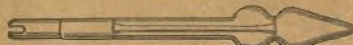
No. 25 Hemorrhoid Electrode, diameter $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$ in.



No. 26 Prostate Electrode, insulated



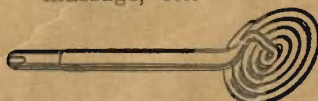
No. 27 Rectal Dilator, diameter $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$ in., for simultaneous treatment of internal and external hemorrhoids



No. 28 Rectal Dilator, insulated, diameter $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$ in., for internal hemorrhoids



No. 29 Full-vacuum electrode, for use as handle for indirect massage, etc.



No. 30 Spiral Heart Electrode



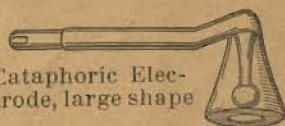
No. 31 Chest Developer Electrode, concave shape



No. 32 Wound-treatment Electrode with deepened ray-surface



No. 33 Cataphoric Electrode, with aperture for insertion of cotton-wool steeped in medicament



No. 34 Cataphoric Electrode, large shape

DENTAL ELECTRODES.



No. 35 Dental Electrode, with flat top, for introduction of chemical solutions



No. 36 Dental Electrode, with hollow top, for the same purpose



No. 37 Dental Electrode with ball-shaped top, specially for treatment of pyorrhæa



No. 38 Cataphoric Electrode for dentists



No. 39 Dental Electrode, pointed shape, for treatment of abscesses



No. 40 Electrode for special tooth-gum massage



No. 41 Electrode for internal treatment of the jawbone



No. 42 Electrode for treatment of front gums



No. 43 Dental Cautery Electrode



No. 44 Electrode for internal treatment of gums of jaw



No. 45 Electrode for treatment of left jaw



No. 46 Electrode for treatment of right jaw



No. 51 Massage-Roller (Patented)



Massage-Roller (Patented)



No. 101 Ozone Inhaler with bulb for cotton-wool



Ozone Inhaler, with spray



No. 103 Nerve Brush



No. 105 Testing Rod